## 164

QH 573 J58

# Journal of SCIENCE

Formerly the Quarterly Journal of Microscopical Science

VOLUME 2, 1967

#### Editors:

H. G. CALLAN

A. V. GRIMSTONE

#### Editorial Board:

G. H. BEALE

H. G. DAVIES

J. B. FINEAN

E. G. GRAY

JEAN HANSON

H. HARRIS

J. HESLOP-HARRISON

S. J. HOLT

H. E. HUXLEY

B. JOHN

J. M. MITCHISON

D. H. NORTHCOTE

J. PAUL

SIR JOHN RANDALL

M. G. P. STOKER

Published for the Company of Biologists Limited
CAMBRIDGE UNIVERSITY PRESS

#### CONTENTS

#### NUMBER 1 MARCH 1967

- page 1 Callan, H. G.

  The organization of genetic units in chromosomes
  - 9 WHITEHOUSE, H. L. K.
    A cycloid model for the chromosome
  - HARRIS, H.
    The reactivation of the red cell nucleus
  - 33 BLENKINSOPP, W. K.

    Mast cell proliferation in adult rats
  - Owen, Maureen
    Uptake of [3H]uridine into precursor pools and RNA in osteogenic cells
  - 57 Ling, N. R. and Holt, P. J. L.

    The activation and reactivation of peripheral lymphocytes in culture
  - 71 Meiselman, N., Kohn, A. and Danon, D. Electron microscopic study of penetration of Newcastle disease virus into cells leading to formation of polykaryocytes
  - 77 Jeffs, R. A. and Northcote, D. H.

    The influence of indol-3yl acetic acid and sugar on the pattern of induced differentiation in plant tissue culture
  - 89 BERRIDGE, M. J. and GUPTA, B. L. Fine-structural changes in relation to ion and water transport in the rectal papillae of the blowfly, *Calliphora*
  - GILLIS, J. M. and PAGE, SALLY G.

    Localization of ATPase activity in striated muscle and probable sources of artifact
  - MADDRELL, S. H. P. and TREHERNE, J. E.

    The ultrastructure of the perineurium in two insect species, Carausius morosus and Periplaneta americana
  - SMITH, J. W., PETERS, T. J. and SERAFINI-FRACASSINI, A.
    Observations on the distribution of the proteinpolysaccharide complex and collagen in bovine articular cartilage
  - Macgregor, H. C. and Mackie, J. B.
    Fine structure of the cytoplasm in salivary glands of Simulium

### NUMBER 2 JUNE 1967

- page 145 Macgregor, H. C.
  Pattern of incorporation of [<sup>3</sup>H]uridine into RNA of amphibian oocyte
  nucleoli
  - HAY, ELIZABETH D. and GURDON, J. B. Fine structure of the nucleolus in normal and mutant *Xenopus* embryos
  - 163 GALL, J. G.

    The light microscope as an optical diffractometer
  - 169 Behnke, O. and Forer, A.

    Evidence for four classes of microtubules in individual cells
  - 193 WATKINS, J. F. and GRACE, D. M.
    Studies on the surface antigens of interspecific mammalian cell heterokaryons
  - Malhotra, S. K. and Eakin, R. T.
    A study of mitochondrial membranes in relation to elementary particles
  - Baker, T. G. and Franchi, L. L.

    The fine structure of oogonia and oocytes in human ovaries
  - 225 SMITH-SONNEBORN, JOAN and PLAUT, W. Evidence for the presence of DNA in the pellicle of *Paramecium*
  - 235 ODHIAMBO, T. R.

    The fine structure and histochemistry of the fat body in the locust,

    Schistocerca gregaria
  - 243 Wigglesworth, V. B.
    Cytological changes in the fat body of *Rhodnius* during starvation, feeding and oxygen want
  - 257 Perry, Margaret M.

    Identification of glycogen in thin sections of amphibian embryos
  - 265 Manton, Irene
    Further observations on the fine structure of *Chrysochromulina chiton*with special reference to the haptonema, 'peculiar' Golgi structure and
    scale production
  - 273 NEVILLE, A. C. Factors affecting the tertiary structure of resilin in locusts
  - 281 Grimstone, A. V., Rotheram, Susan and Salt, G.
    An electron-microscope study of capsule formation by insect blood cells

Contents

#### NUMBER 3 SEPTEMBER 1967

- page 293 STOKER, M. G. P.

  Transfer of growth inhibition between normal and virus-transformed cells: autoradiographic studies using marked cells
  - 305 BLENKINSOPP, W. K.
    Effect of tritiated thymidine on cell proliferation
  - Macintyre, Elizabeth and Pontén, J.
    Interaction between normal and transformed bovine fibroblasts in culture I. Cells transformed by Rous sarcoma virus
  - 323 KEMP, R. B., Jones, B. M., Cunningham, I. and James, M. C. M. Quantitative investigation on the effect of puromycin on the aggregation of trypsin- and versene-dissociated chick fibroblast cells
  - 341 CLARK, A. W.

    The fine structure of the eye of the leech, Helobdella stagnalis
  - EAKIN, R. M., WESTFALL, JANE A. and DENNIS, M. J. Fine structure of the eye of a nudibranch mollusc, *Hermissenda crassicornis*
  - 359 Chapman, J. A., Elves, M. W. and Gough, J. An electron-microscope study of the *in vitro* transformation of human leucocytes I. Transformation of lymphocytes to blastoid cells in the presence of phytohaemagglutinin
  - 371 Chapman, J. A., Gough, J. and Elves, M. W. An electron-microscope study of the *in vitro* transformation of human leucocytes II. Transformation to macrophages
  - JOHNSTON, PATRICIA V. and ROOTS, BETTY I.

    Fixation of the central nervous system by perfusion with aldehydes and its effect on the extracellular space as seen by electron microscopy
  - 387 HESLOP-HARRISON, J. and MACKENZIE, A.

    Autoradiography of soluble [2-14C]thymidine derivatives during meiosis and microsporogenesis in *Lilium* anthers
  - NUNEZ, E. A., GOULD, R. P., HAMILTON, D. W., HAYWARD, J. S. and HOLT, S. J.

    Seasonal changes in the fine structure of the basal granular cells of the bat thyroid
  - 411 Manton, Irene
    Further observations on scale formation in Chrysochromulina chiton
  - HAYES, R. L. and ALLEN, E. R. Electron-microscopic studies on a double-stranded beaded filament of embryonic collagen

- page 435 Ashhurst, Doreen E.

  The fibrillar flight muscles of giant water-bugs: an electron-microscope study
  - GAY, F. W. and ATTRIDGE, J. T.

    The fine structure of cytoplasmic inclusions in a mycoplasma-like infection in mice
  - 451 Spanswick, R. M. and Costerton, J. W. F.
    Plasmodesmata in *Nitella translucens*: structure and electrical resistance

#### NUMBER 4 DECEMBER 1967

- SABNIS, D. D. and JACOBS, W. P.
  Cytoplasmic streaming and microtubules in the coenocytic marine alga,

  Caulerpa prolifera
- CHOUINARD, L. A. and LEBLOND, C. P.
  Sites of protein synthesis in nucleoli of root meristematic cells of *Allium cepa* as shown by radioautography with [3H]arginine
- 481 Tucker, J. B.

  Changes in nuclear structure during binary fission in the ciliate *Nassula*
- Benedetti, E. L. and Emmelot, P.
   Studies on plasma membranes
   IV. The ultrastructural localization and content of sialic acid in plasma membranes isolated from rat liver and hepatoma
- 513 Bryan, G. W., Zadylak, Arlene H. and Ehret, C. F. Photoinduction of plastids and of chlorophyll in a *Chlorella* mutant
- 529 Lu, B. C.

  Meiosis in *Coprinus lagopus*: a comparative study with light and electron microscopy
- 537 Lee, D. L. and Anya, A. O.

  The structure and development of the spermatozoon of *Aspiculuris tetraptera* (Nematoda)
- 545 Griffin, M. J. and Cox, R. P.
  Studies on the mechanism of substrate induction and L-cyst(e)ine repression of alkaline phosphatase in mammalian cell cultures
- O'BRIEN, T. P.Cytoplasmic microtubules in the leaf glands of *Phaseolus vulgaris*
- 563 SLAUTTERBACK, D. B.
  Coated vesicles in absorptive cells of *Hydra*

Contents

- bage 573 Jones, D. G.

  An electron-microscope study of subcellular fractions of Octopus brain
  - 587 Finch, J. T., Klug, A. and Nermut, M. V.

    The structure of the macromolecular units on the cell walls of *Bacillus polymyxa*
  - THORNHILL, R. A.

    The ultrastructure of the olfactory epithelium of the lamprey Lampeira fluviatilis
  - 603 WIGGLESWORTH, V. B.
    Polyploidy and nuclear fusion in the fat body of *Rhodnius* (Hemiptera)
  - 617 Tooze, J. and Davies, H. G.

    Light- and electron-microscope studies on the spleen of the newt *Triturus cristatus*: the fine structure of erythropoietic cells

